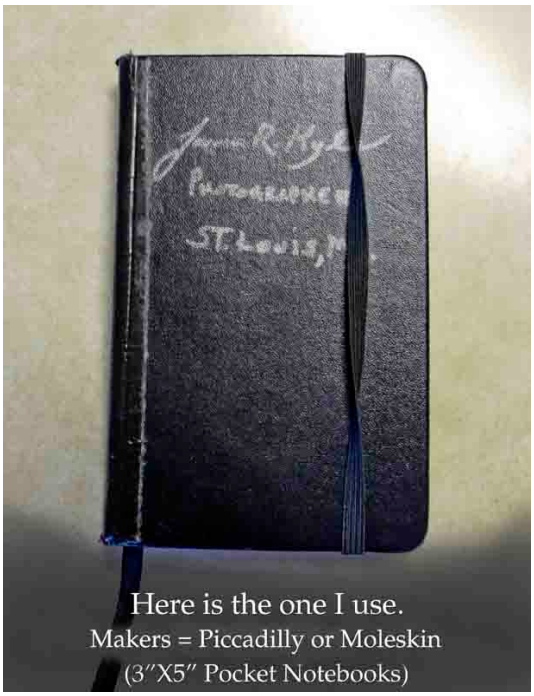
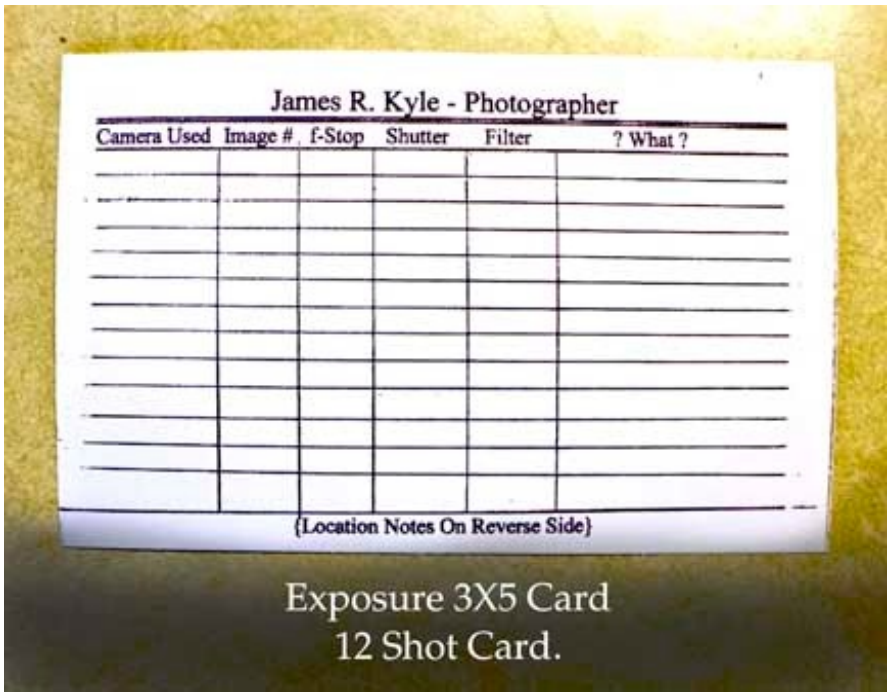
The Using of a Spot Meter for Paper Negatives

One of the more important items to have when capturing photographic images is a good light meter. I prefer the "***Spot Meter***", for several reasons over the "ambient" light meter. Because the spot meter is very selective as to where one would point it. It is very finite selection where one can gather very detailed information on a small area (three to twelve degrees). I use an old ***"Pentax Model Five"*** - but any spot meter is better that a full wide ambient meter. "The model five" Pentax is not manufactured anymore - However - They may be found on E-Bay and other online shopping sites for used items.

When I meter an area I take three to five different area readings. I write these down in my *"Field Notebook"* (I keep this notebook in my camera bag - or in the cooler months, in my vest pocket with two pencils and two pens.) For what I do, I find the spot meter indispensable for getting a good exposure that I might develop in the darkroom. (I also use what I call a *"Twelve Shot Card"* - where I write the settings of the exposure from the lens. This card shall accompany the days used film holders, and after development - will be stored with the negatives for future reference and use.)


Here is the one I use.
Makers = Piccadilly or Moleskin
(3″X5″ Pocket Notebooks)



Exposure 3X5 Card
12 Shot Card.

I shall not go into the detail of the use of this particular meter that I use, as there are other meters out there that are, of course, different as to their operation. All light meters do basically the same thing. After you make the setting of the "speed" of the film (or paper or digital sensitivity) the ASA - or nowadays - ISO is the ***"constant"*** for the other two unknown variables (*i.e. f-Stops and Shutter Speeds*). This setting will govern image quality as to what you select. With chemical photography, the ISO is usually not changed, unless the film is changed to a lower or higher sensitivity. If I load 12 holders with a paper (film) of an ISO of three *(for shaded areas - to six ISO for bright sunny areas*), That usually will not change for those 12 holders.

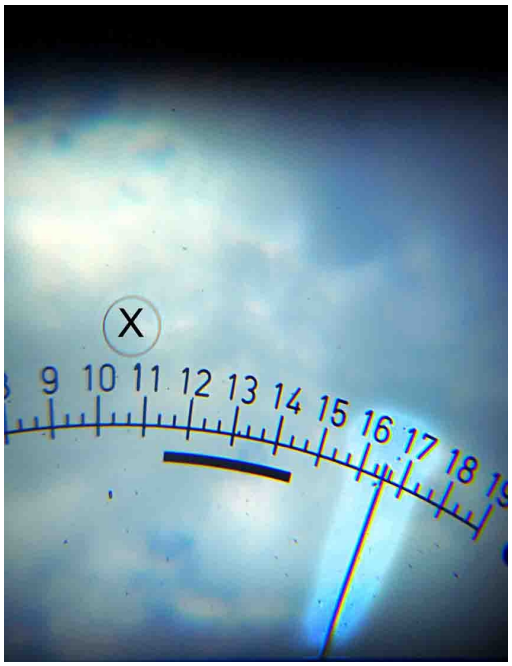
The selection of the areas of interest might be:

1.) - Full Sun (open fields, oceans and deserts.), [partly clouded skies]
2.) - Partly Shaded Areas (sunny, and mix of shade of trees and or buildings.)
3.) - Overcast Sky (cloudy and very little sun - or light fog.)

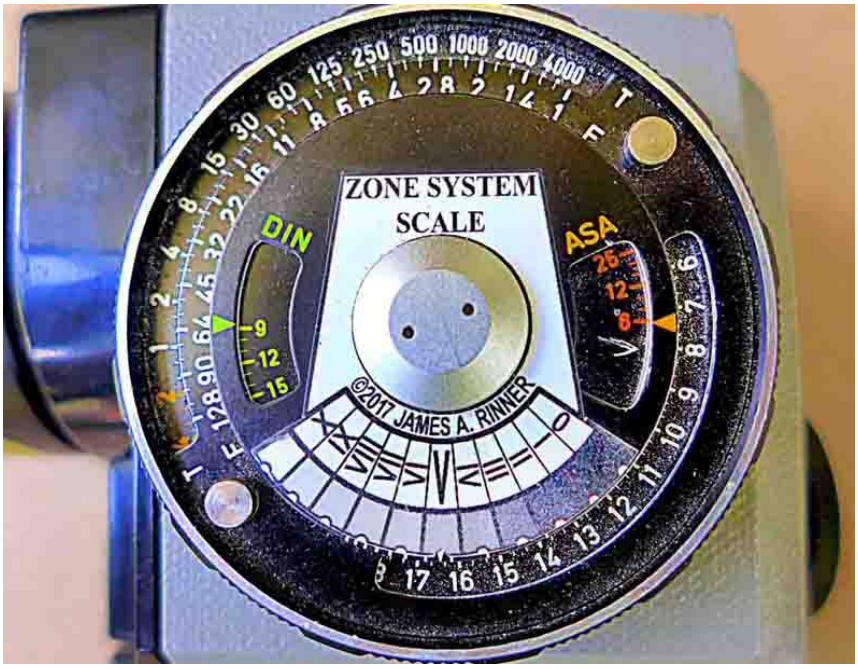
As all of film, and especially that of photographic paper, is sensitive to Ultra Violet light, the light meter will not "see" this and therefore, it can not be taken into account as an exposure factor. One just must keep this in mind to calculate. ((The use of almost any filter will cancel out the UV light.) A Yellow or Orange filter will help with retaining the light gray areas. And is the best to use, that I have found.))

The areas of concern, to me, are = The Highlights - The Midrange (*Zone 5*) And the usable Low lights of the shadows. With paper negatives, because of it's *orthochromatic* nature, it is not sensitive to the RED color, and very sensitive to the colors of Blue and Green - and too, yellows show as blacks. So, the photographer is forced to make "compromises". (The best way to see how colors react to the making of any orthochromatic emulsion material is to do an exposure of a *"Macbeth Chart"*, and see.)

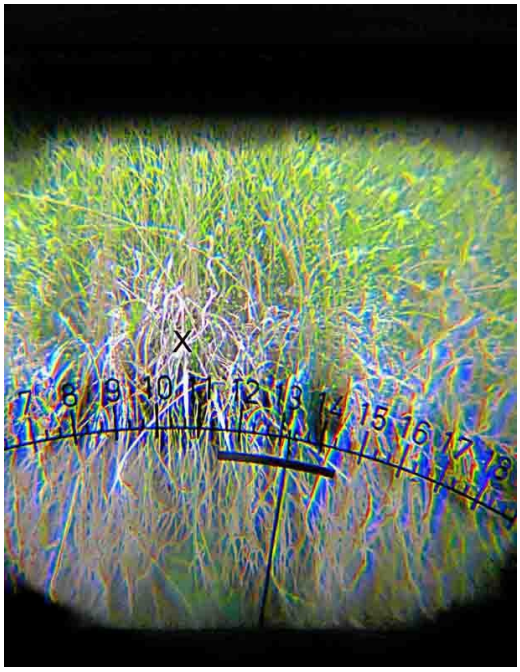
Below are examples of meter reading of ISO-6 of different areas of concern for an exposure to "average" into a single quality image.

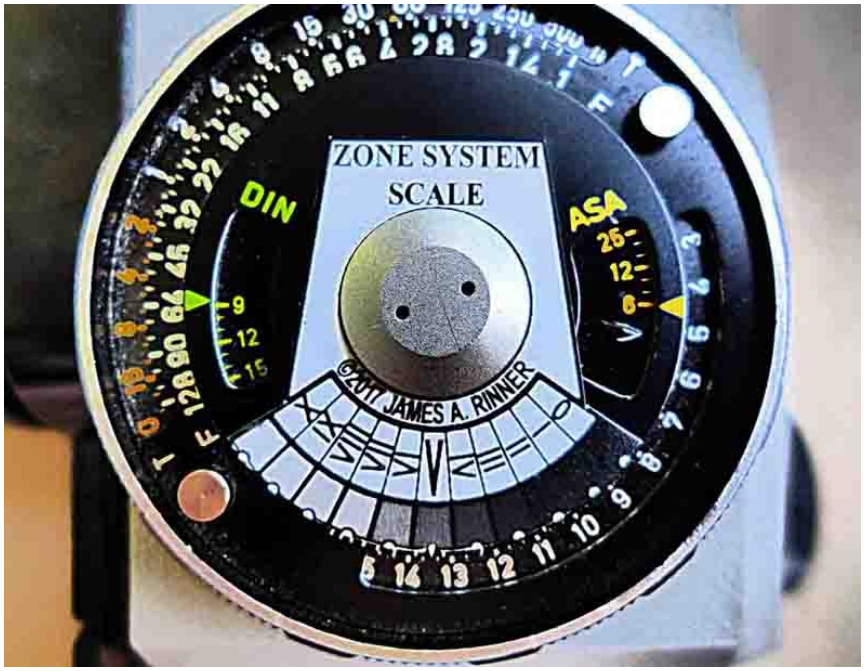


Reading a Cloudy Sky

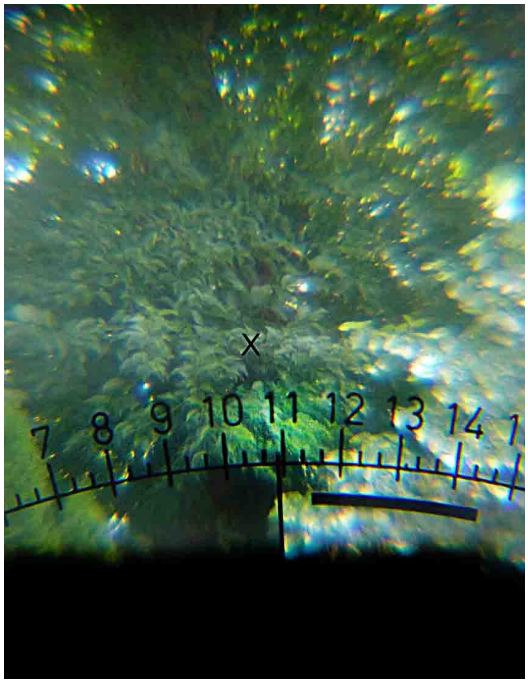


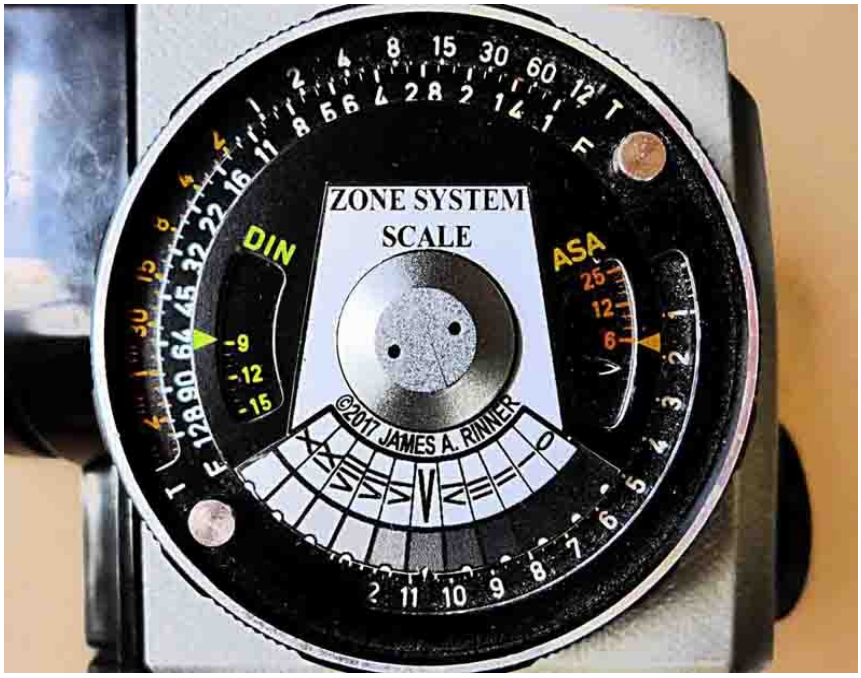
Set the E.V. number from the meter to the dial





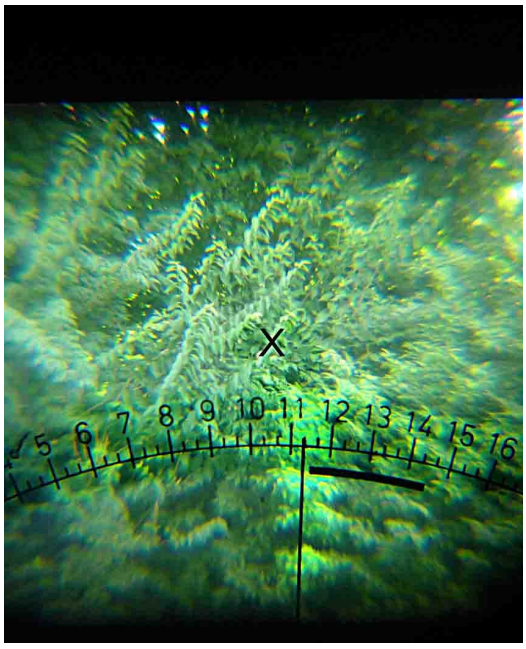
After set the E.V. number - Read the f-Stop and the Shutter times on the upper part.



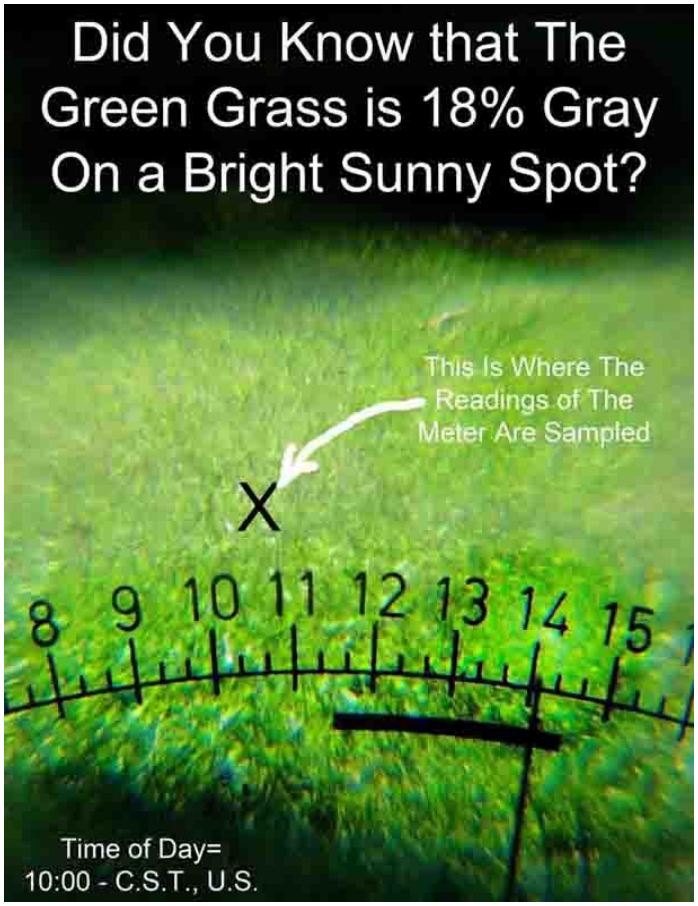


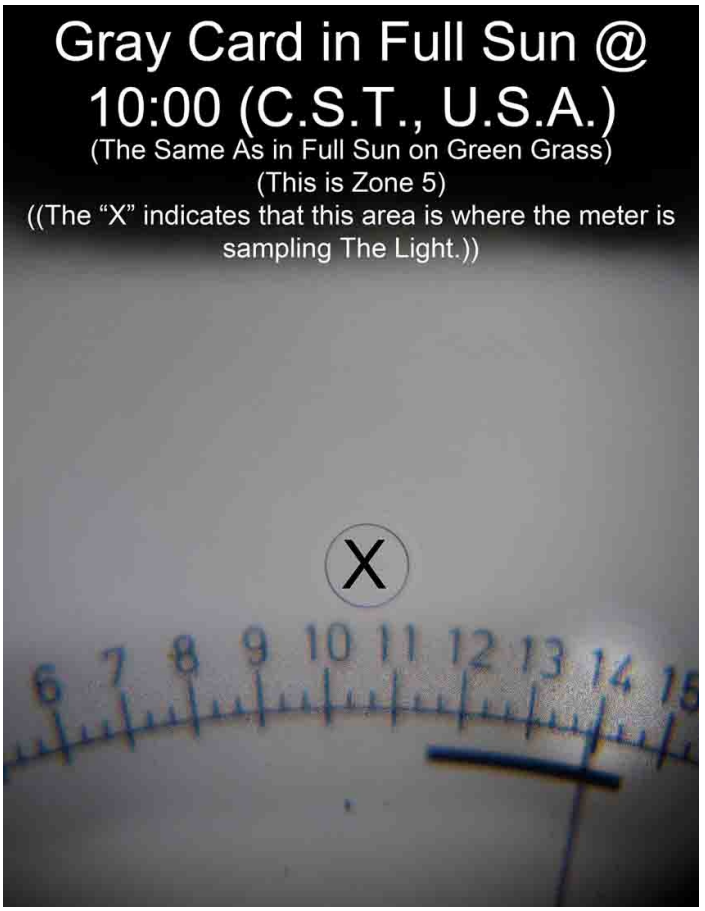
Take a reading of a Midrange Then set that E.V. number on the E.V. Dial

Take note that the exposure selections on these examples where the exposure settings are on the upper “window” of the meter dial-face. (In this instance you see that an E.V. of 11 is indicated on the meter face. Set that E.V. number on the E.V. number dial as shown. Now - Look at the choice of exposure setting choices. If you want to use f-5.6, the Shutter Time will be set at about 1/3rd of a second. (One can select a 1/2 or 1/4 of a second - OR- f-16 and 3 Seconds of exposure on the lens used.) Of course as everyone knows, the “Higher” the f-Stop number indicates a Smaller “hole” - and thus = Everything will be in focus from 15 to 75 feet from the camera. (For face portraits I like FULL OPEN of any lens, to make the person “stand out” of the image from the background.



Here is another example of a little brighter than midrange - Which would be exposed at f-11 at 1 Second.


Did You Know that The Green Grass is 18% Gray On a Bright Sunny Spot?
This Is Where The Readings of The Meter Are Sampled
X
8 9 10 11 12 13 14 15
Time of Day=
10:00 - C.S.T., U.S.


Gray Card in Full Sun @ 10:00 (C.S.T., U.S.A.)
(The Same As in Full Sun on Green Grass)
(This is Zone 5)
((The "X" indicates that this area is where the meter is sampling The Light.))
X
6 7 8 9 10 11 12 13 14 15

The best way to determine 18% gray is with a 18% Gray Card. These are a very accurate way to regulate your exposure, particularly that for portraiture. When you do not have a *"Gray Card"* with you, and you wish to set your "white balance" on a digital camera on a bright sunny day - use the lawn. (*Of course, this is only for digital cameras*.) So - the best thing to do for all portrait work is to use the "Gray Card".

As with just about everything with the making of paper negatives, experiment with everything. And do not pay any heed to others who have not tried to do what You want to do. Just because someone tells you that something will not work, does not really mean that it won't. Just perhaps they were told that from another person that did not try to do it. Not all scientist are college educated - there are many more scientists that are what is known as "Autodidactic". They have learned by doing. When anyone tells me that what I want to do is not treatable. I begin to think of a way that might be the way of an alternative.

So = Keep Notes, Read, Goggle EVERYTHING you are wondering about, and you just may fine a new and different way.

The only thing that is impossible is *"perpetual motion"*. (That and "World Peace").

Thank you for taking the time to read this. NOW - Off you go, and EXPERIMENT.

James R. Kyle, Photographer - Saint Louis, Missouri, U.S. of A.

The Zone System of Photography

For *Perfect* Prints, Negatives, & Slides

Complete Instructions For The Use of 18% Gray Cards:

The Gray Card is specifically manufactured for the photographer and printer to aid in determining exposure, lighting ratios, and color balance. The Gray Card is manufactured to be neutral gray on one side. The gray side is designed to reflect 18% of the light hitting it.

Light meters and camera meters are calibrated to average the light reflecting off a scene so that the film will record the scene as average. The average scene will reflect approximately the same as a gray card or 18%. However, if the scene is not average, it is necessary to make an adjustment to the setting of your meter. This is the time to use your gray card. It will help you determine the proper exposure adjustments.

Using the Gray Card to Determine Exposure

First, it is important that the gray card and your subject are receiving the same illumination. Second, position the gray card so there are no shadows, glare, or hotspots on the card itself. By holding the meter approximately 6 inches from the card, you will get the appropriate reading of light reflecting off the card. With a camera that has a built-in meter, you can see exactly what you are reading. When making your measurement avoid casting a shadow on the card.

For Artificial Light—place the card close to and in front of the subject, aimed halfway between the main light and camera.
When Using Daylight—place the card in front of the subject, pointing at the camera. You can take your reading with the card near your camera if you place the card so it is in the same relationship to the light source as the subject.
If The Subject is Very Dark—increase your calculated exposure by 1/2 or 1 stop.
If The Subject is Very Light—decrease your calculated exposure by 1/2 to 1 stop.
If You are Unsure of the Best Exposure—use a bracketing technique to be sure you have the appropriate exposure.

Using the Gray Card to Determine Lighting Ratios

The relationship between main plus fill-in illumination and fill-in illumination alone expresses the Lighting Ratio. Generally this ratio should not exceed 3:1 for color or 5:1 for black and white to achieve the best results in the final print.

Use your gray card to determine the appropriate lighting arrangement to achieve the appropriate lighting ratio. To accomplish this, follow these steps:

1. Place the card in close proximity of the subject.
2. To read main plus fill-in illumination, position the card to the angle that gives the highest reading on the scale of your light meter. Typically this will be aimed in the direction of the main light. All lights should be on except for the lights that shine directly into the meter producing a false high reading. Record the reading.
3. To read fill-in illumination, position the card so it aims toward the camera lens and turn off the main light. Record the reading.
4. Use the table below to determine the lighting ratio. The table will give you the ratio of the area that receives illumination from both lights and the area that just receives the fill light.

Stops Difference	*Lighting Ratio*	*Stops Difference*	*Lighting Ratio*
2/3	1/5:1	2-2/3	6:1
1	2:1	3	8:1
1-1/3	2.5:1	3-1/3	10:1
1-2/3	3:1	3-2/3	13:1
2	4:1	4	16:1
2-1/3	5:1	5	32:1

To Determine Color Balance

The Gray Card may be used as a constant or standard that does not vary in your color printing. By including a gray card in the scene in which you are photographing, you are including a reference which records the color of light illuminating the scene. Color variations in lighting are the major reason for filtration variance in color printing. It may be necessary to print the gray card slightly off neutral to make the most accurate print. The reason for this is that films do not reproduce an absolute neutral gray when everything else in the print is balanced properly.

Place the gray card in the scene, making sure it is illuminated the same as the subject. By carefully placing the card in the scene, it can be masked out of the finished print or simply make two exposures, one with and one without the gray card.

Recommended Reading:

The New Zone System Manual by White, Zakia, Lorenz
The Zone VI Workshop by Fred Picker
Printing With Fred Picker (A Zone VI Photography Video)
Beyond the Zone System by Phil Davis
How To Use The Zone System For Fine B&W Photography by John P. Schaefer

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The "Gray Card" is a Very Useful Tool - For ALL Photographers

(Don't be in the Dark about The Light.)